WHAT IS CLAIMED IS:

1. A method for designing a ring in a telecommunications network, comprising:

(a) selecting a largest demand from among a set of demands to be routed in the telecommunications network, said largest demand being associated with a respective pair of nodes in said network;

(b) generating a cycle of interest including a first path segment that starts at one node of said pair of nodes and passes through one sequence of nodes to another node of said pair of nodes, said cycle of interest further including a second path segment that starts at said another node and passes through another sequence of nodes to said one node, all of the nodes between said one node and said another node in said one sequence of nodes being different from each of the nodes between said one node and said another node in said another sequence of nodes;

(c) defining a plurality of potential rings each including, as add-drop nodes for the handling of demand, said one node, said another node and at least one additional node selected from among the nodes of said one sequence and said another sequence, each of said potential rings including only nodes on said cycle of interest, each of said potential rings carrying said largest demand and further carrying at least one additional demand for each said additional node on the respective potential ring;

(d) computing a cost for constructing each of said potential rings;

(e) comparing the computed cost of each of said potential rings at least indirectly with a cost of a pre-determined benchmark architecture carrying the same demand as the respective one of said potential rings; and

(f) determining from the compared computed costs a network structure for carrying demand at a relatively lowest cost.

2. The method defined in claim 1, further comprising inputing into said computer, prior to the selecting of said largest demand and the generating of said cycle of interest, a set of demands, nodes identified as being in said network, links between the identified nodes of said network, and possible or available equipment.

3. The method defined in claim 2 wherein said potential rings are respective combinations of said links and nodes on said cycle of interest and include one add-drop multiplexer in each node.

4. The method defined in claim 3 wherein the selecting of said largest demand, the generating of said cycle of interest, the defining of said potential rings, the computing of the construction costs, and the comparing of the computed costs are all performed automatically by a general purpose digital computer.

5. The method defined in claim 2, further comprising inputting into said computer a maximum ring circumference and eliminating from consideration any of said potential rings having a circumference larger than said maximum circumference.

6. The method defined in claim 1 wherein the computing of the costs of said potential rings includes adding in the costs of equipment installed at the nodes of said cycle of interest.

7. The method defined in claim 6 wherein the computing of the costs of said potential rings includes adding in the costs of optical add-drop multiplexers at and only at said one node, said another node and each said additional node.

8. The method defined in claim 1 wherein at least a certain one of said potential rings is a DWDM ring, the computing of the costs of said certain one of said potential rings including adding in the costs of optical add-drop multiplexers.

9. The method defined in claim 8 wherein at least another certain one of said potential rings is a SONET/SDH ring, the computing of the costs of said another certain one of said potential rings including adding in the costs of SONET add-drop multiplexers.

10. The method defined in claim 1 wherein the determining of said network structure includes identifying a one of said potential rings having a lowest cost, further comprising assigning, to the identified one of said potential rings, said largest demand and at least a portion of said additional demand.

11. The method defined in claim 10, further comprising:

eliminating said largest demand and said portion of said addition demand from said set of demands;

selecting a remaining largest demand from among a set of demands to be routed in the telecommunications network, said remaining largest demand being associated with a respective additional pair of nodes in said network;

generating an additional cycle of interest including a first additional path segment that starts at a first node of said additional pair of nodes and passes through one additional sequence of nodes to a second node of said pair of nodes, said additional cycle of interest further including a second additional path segment that starts at said second node and passes through another additional sequence of nodes to said first node, all of the nodes between said first node and said second node in said one additional sequence of nodes being different from each of the nodes between said first node and said second node in said another additional sequence of nodes;

defining a plurality of additional potential rings each including, as add-drop nodes for the handling of demand, said first node, said second node and at least one further node selected from among the nodes of said one additional sequence and said another additional sequence, each of said additional potential rings including only nodes on said additional cycle of interest, each of said additional potential rings carrying said remaining largest demand and further carrying at least one further demand for each said further node on the respective additional potential ring;

computing a cost for constructing each of said additional potential rings;

comparing the computed cost of each of said additional potential rings at least indirectly with a cost of a pre-determined benchmark architecture carrying the same demand as the respective one of said additional potential rings; and

determining from the compared computed costs an additional network structure for carrying demand at a relatively lowest cost.

12. The method defined in claim 1, further comprising:

partitioning said network into a plurality of geographical areas;

breaking any demand from any distinct one of said areas area to a foreign one of said geographical areas into a portion going to a first interconnection point, from that first interconnection point to a second interconnection point of the foreign area, and from that second interconnection point to a final node;

designing a ring network within each of said geographic areas, where each of said geographic areas is designed to have transport systems handling only demand with endpoints within that respective area, the designing of each of the ring networks including the performance of steps (a) through (f); and

designing an additional network to handle the demands between the interconnection points.

13. The method defined in claim 1 wherein each of said potential rings is generated by adding a node from the nodes of said first sequence and said second sequence to a current set of add/drop nodes, the added node being that node offering the largest demand to the current set of add/drop nodes.

14. The method defined in claim 1 wherein said benchmark architecture is a dual-hub architecture.

15. A method for designing a telecommunications network comprising a plurality of nodes and links interconnecting each of said nodes with one or more other nodes of the network, comprising:

inputting, into a computer, identifications of the nodes and the links of the network and demands between pairs of said nodes;

operating said computer to define a series of rings and evaluate costs for each of said rings to determine a least-cost signal transmission structure for said network; and

building said least-cost signal transmission structure,

wherein the operating of said computer includes:

defining a set of demands, said set of demands initially consisting of the input demands;

selecting a largest demand from said set of demands, said largest demand being associated with a first node and a second node;

generating a cycle between said first node and said second node, said cycle including a first path and a second path each of nodes and links extending between said first node and said second node, said second path having nodes and links all different from nodes and links of said first path;

selecting different combinations of nodes on said cycle, each combination including said first node and said second node and at least one other node on one of said first path and said second path, all of the nodes in any given one of said combinations having at least one demand to another node of said given one of said combinations;

determining a cost to construct each of said combinations; and

executing cost comparisons on said combinations to ascertain said least-cost signal transmission structure for carrying said largest demand on said network.

16. The method defined in claim 15 wherein the executing of said cost comparisons includes comparing the costs of at least some of said combinations with a cost of a benchmark architecture.

17. The method defined in claim 16 wherein said benchmark architecture is a dual-hub architecture.

18. The method defined in claim 16 wherein the executing of said cost comparisons also includes comparing the cost of a least costly ring with a cost of a point-to-point transmission system for carrying said largest demand.

19. The method defined in claim 15 wherein the determining of the cost to construct any particular one of said combinations includes costing installation of OADMs on the nodes of said particular one of said combinations, to thereby determine cost of a DWDM ring.

20. The method defined in claim 19 wherein the determining of the cost to construct any particular one of said combinations further includes costing installation of SONET/SDH equipment on the nodes of said particular one of said combinations, to thereby determine cost of a SONET/SDH ring.

21. The method defined in claim 20 wherein the costing of said SONET equipment is performed prior to the costing of said OADMs.

22. The method defined in claim 15 wherein the defining of said set of demands includes eliminating any demand which has been used as the largest demand in generating a cycle, or which has previously been routed on a system.

23. The method defined in claim 15, further comprising:

inputting ring constraints into said computer prior to the operating thereof, said ring constraints including a maximum circumference;

determining, for each individual one of said combinations, whether said individual one of said combinations violates one of said ring constaints; and

eliminating any individual one of said combinations which violates one of said ring constraints.

24. The method defined in claim 15, further comprising inputting into said computer, prior to the selecting of said largest demand and the generating of said cycle of interest, possible or available equipment.

25. The method defined in claim 15 wherein said telecommunications network is a part of a larger network, said telecommunications network serving a first geographical area, said larger network serving a second geographical area, said first geographical area being contained in said second geographical area, further comprising:

partitioning said larger network to define said telecommunications network and at least one other network;

designating one of the nodes of said first geographical area as an interconnection node for demand between nodes of said first geographical area and nodes of said larger network outside of said telecommunications network.